DOCUMENT RESUME

ED 031 311 PS 002 068

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Information Value of Feedback With Preschool Children.

California Univ., Los Angeles.
Spons Agency-Office of Education (DHEW), Washington, D.C.
Pub Date Mar 68
Contract-OEC-5-85-045
Note-8p.; Paper presented at the California Educational Research Association, San Francisco, California, March, 1968
EDRS Price MF-$0.25 HC-$0.50
Descriptors-*Concept Teaching, Culturally Disadvantaged, *Feedback, Hypothesis Testing, Information Utilization, *Learning Processes, Motivation, Performance Factors, Pilot Projects, *Preschool Children, *Reinforcement
Identifiers-Edwards Multiple Categorization Test, Peabody Picture Vocabulary Test, PPVT

Nineteen Negro children, ages 5 to 5 1/2, were divided into four treatment groups to study the value of feedback to learning. Group I received feedback on correct and incorrect responses on a simple concept identification task. Group II received information only on correct answers. Group III were given the same task as I and II, but received no feedback. Group IV did not have any task practice between testing sessions. All children were pre- and posttested with the Peabody Picture Vocabulary Test, and given a transfer test, the Edwards Multiple Categorization Test, after the training period. The results showed that although Group II happened to have a higher mental age than Group I, the performance of the two groups on the concept identification task was not significantly different. The performance of Group I on the transfer test was superior to that of all other groups. Although the population was small, and the program content was insufficiently challenging to provide definitive results, it appears that preschool children are able to look at feedback as information and to profit from such guidance in concept identification. Further study is indicated. (WD)

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ED031311

INFORMATION VALUE OF FEEDBACK WITH PRESCHOOL CHILDREN[1,2]

Carolyn Stern and Joyce Teager

How to motivate young learners to do well on school tasks has always been a question of great concern to educators; it has become even more critical in the planning of intervention programs for disadvantaged children.

For a long time it was accepted as almost axiomatic that any type of positive reinforcement would be more effective in changing behavior than negative reinforcement. (Cf. Bandura, 1962.) However, recent experiments which take into account the previous history of the learner (e.g. Church, 1963; Solomon, 1964; Baxter, Lerner, and Miller, 1965) demonstrate that there are individual differences in the reinforcement value of various types of stimuli. Children who have been accustomed to positively reinforced experiences do learn best when they receive approval or tangible rewards, but it is said (cf. Lee, 1967) that those who have known a preponderance of punishment seem to respond best to aversive stimuli. That is, they put out more effort to avoid punishment, perhaps because they have learned that the best they can expect is the avoidance of pain.

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[1]Paper presented at the California Educational Research Association, San Francisco, California, March 1968.

[2]The research reported is supported by the U.S. Office of Education, Vocational Education Act of 1963, Project No. OE 5-85-045.

In line with such findings, a number of investigators have noted that students who come from poor families show a marked lack of interest in academic achievement and are not particularly responsive to awards or commendations usually considered to be positive reinforcement for school success. (Cf. Gordon and Wilkerson, 1967.) There is also some evidence that children from low-income homes do not put out effort for delayed rewards, nor are they as apt to work for social approval as for material or tangible reinforcement (e.g. Terrell, 1958).

In all of these investigations, however, the focus is on the motivational effects of temporal or other variables relating the nature of the reinforcer to that of the learner. Another basis for evaluating reinforcement procedures is in terms of their effectiveness in providing informative feedback. That is, does the event which follows the student's response provide a meaningful cue which can be expected to set or alter the student's subsequent responses? Suppes and Ginsberg (1962) present evidence that children do not automatically infer, in a two-choice situation, that if one response is incorrect the other is necessarily correct. Thus they found that a non-reinforced incorrect response provided minimal informational value to the learner. With reference to the nature of the reinforcer given for the correct response, Terrell and Kennedy (1957) found that the effectiveness of response acquisition was contingent upon the type of reinforcer used.

The present study is an attempt to determine to what extent an instructional program is dependent upon the amount of information provided by feedback. Specifically, the hypotheses were stated as follows:

1. Children who are given information as to whether the response is correct or incorrect will profit more from an instructional program, as

measured by a test of concept acquisition, than children who are told only when they have selected the correct response.

2. Both of the groups given feedback will be superior to a group given practice but no feedback and to a group given pre- and post-tests but no practice.

Method

Subjects

A group of Negro children consisting of 11 boys and eight girls, 59 to 68 months of age, in three urban Children's Centers, were randomly assigned to one of four treatments.

Criterion Measures

All children were pre- and posttested wtih the Peabody Picture Vocabulary Test. A posttest over training as well as the Edward's Multiple Categorization Test were given after training.

Treatments

Both Treatments 1 and 2 received chemical feedback. This was a special mimeograph ink developed by the A. B. Dick Company. This ink contained a water-soluble, non-toxic pigment, such that when the booklets were printed there was no way of distinguishing the embedded color; however, when touched with a ball-point, water-filled pen, the color was released and the feedback symbol turned either green or red, depending on which color had been used with the mimeograph stencil. Treatment 1 received green feedback when the correct response was marked and red when the incorrect alternative was selected; Treatment 2 received green feedback for correct and no feedback for incorrect responses. In both groups, children were told to keep trying until a green spot identified the correct answer.

Treatment 3 received the same picture booklets but without the chemical feedback. The task for these children was simply to underline the selected picture.

Procedure

All children were given 12-page booklets to familiarize them with the selection task, and with the instructions for the particular treatment.

For Treatments 1 and 2, the instructional booklets consisted of 8 1/2" x 5 1/2" pages each of which showed black-and-white simple line drawings of familiar objects. Directly below each of the three pictures there was a circle 1/2 inch in diameter. All circles gave the appearance of having been cross-hatched wth ordinary mimeograph ink and had a grey or half-tone appearance.

Treatment 1 was told: "One of these toys belongs to Mary. The circles under the pictures will tell which one it is. Take your pen and mark the circle under the doll... See! The circle turned green. Green tells you that this doll is Mary's toy. Now turn the page. One of these pictures shows Robert's pet. Maybe it's the dog. Let's mark the circle under the dog and find out... This time the circle turned red. Red tells you this is not the right picture. Let's try again. Mark the cat... The circle under the cat turned green... Green tells us this is the right picture." The familiarization program proceeded in this way, teaching the children to profit from information contained in the chemical feedback.

The only difference for Treatment 2 was that only correct responses were indicated by color. Incorrect responses released only a grey or muddy effect which was assumed to be non-reinforcing. It was included so that there would be some record of how frequently incorrect responses were selected.

The no-feedback and the control group were given pretraining in marking the booklets, which were identical to those of Treatment 1 and 2 except that no chemical feedback was present. The children in these groups were told to "Draw a line under the _____," for the 12 frames.

Another type of pretraining provided for all the children was naming the pictures to be used in the concept identification task. This instance labeling was included so that there would be evidence that the children recognized the individual items used in the program. All the concept instances used were presented on individual cards which the child was asked to label. When the child could not produce the appropriate label, it was given to him and the card pulled for review.

Two days were spent on testing and familiarization. On the third to sixth days the training programs were presented to one or two children at a time. The content of the instructional programs is presented in Appendix A. The problem frames consisted of a model or instance of the concept, and the child was asked to select one of the alternatives that went "with" it. At points during the programs the children in Treatments 1 and 2 were reminded of the meaning of the feedback. There was no mention of the label of the concept classes; in essence this was a "discovery" procedure.

On the seventh day the posttest was given and on the eighth day the transfer test. For the testing, no feedback was provided.

Results

Means and standard deviations for the treatment groups for chronological age, mental age, pretest, posttest, and transfer test scores are presented in Table 1. Reference to this table shows that while the groups were very similar in mean chronological age, there was a chance difference such that the

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group receiving the red and green feedback were considerably below the mean mental age of the single feedback and the marking only groups. In spite of this, however, Treatment 1 was not significantly different from Treatment 2 on the posttest, and was considerably superior to all other groups on the transfer test.

This pilot study seems to provide evidence that preschool children are able to look at feedback as information and to profit from this guidance in concept identification. The number of children was too small, and the content of the program not sufficiently challenging to provide definitive results, but there is certainly basis for a more extensive study.

Table 1

Means and Standard Deviations on All Variables

TREATMENT GROUP		Chronological Age in Months		[a]Mental Age in Months		Booklets		Transfer	
	N	M	SD	M	SD	M	SD	M	SD
1 Green - Red	4	60.3	5.2	44.3	7.6	10.0	2.2	6.3	6.2
2 Green - Black	5	59.2	5.2	53.8	12.8	10.2	.8	2.8	1.3
3 Marking Only	5	61.4	2.5	50.2	10.0	8.8	2.2	2.8	2.9
4 Control	5	59.6	5.3	45.0	4.5	9.4	2.7	2.8	1.3

[a]Based on Peabody Picture Vocabulary Test

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DOCUMENT RESUME

ED 031 331 RC 003 525

"There's an Indian in Your Classroom." A Guide for Teachers.
Idaho State Dept. of Education, Boise.
Pub Date Jul 68
Note-129p.
EDRS Price MF-$0.75 HC-$6.55
Descriptors-American Indian Languages, *American Indians, Annotated Bibliographies, Classroom Techniques, *Cultural Differences, Cultural Education, *Educational Problems, Geographic Location, *Instructional Materials, Language Handicaps, Parent Participation, Realia, Self Concept, *Teaching Techniques

Requests from teachers, interested individuals, organizations, and schools brought about the compilation of this general guide designed for teachers and non-educators concerned with Indian students. It is the result of numerous workshops conducted on the campus of Idaho State University. The document presents general information about geographic location of Indian reservations and groups, major problems of Indian education (language and cultural), and various instructional techniques designed to aid the students in their adjustment to the classroom and to cultural shock. A unit on the American Indian includes maps, Indian literature, a list of famous Indians (past and present), and a bibliography for further reading for students and teacher. (DK)